

REMARKS

Claim 7 has been amended and new claim 13 added in order to more particularly point out, and distinctly claim the subject matter to which the applicant regards as his invention. The applicant respectfully submits that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated July 16, 2004.

Claim Rejections under 35 SUC §103

Claims 7-8 are rejected under 35 USC §103(a) as being unpatentable over Sakai (U.S. Patent No. 5,206,730) in view of Hidetoshi et al. (JP 06-022262).

The present invention is a digital camera having the capability of still image recording in which a single scene is recorded and motion image recording in which a number of scenes are recorded. This digital camera uses a battery to power its operations. The remaining battery voltage is measured when the shutter button is operated. As shown in step S6 of figure 2, when the camera is in still image recording mode the picture is taken if the remaining battery voltage is greater than or equal to 5% of the battery fully charged capacity. As shown in step S9 of figure 2, when the camera is in motion image recording mode the pictures are taken if the remaining battery voltage is greater than or equal to 25% of the battery fully charged capacity.

Sakai describes describes a digital camera having a battery which is capable of a one shot photographing mode and a serial shot photographing mode.

Hidetoshi et al. describes a camera in which when a battery voltage drops below a 1st power

saving reference voltage then the moving picture recording mode is disabled and a display is given to a display device (4) and a signal is given to an audio circuit (5). In a still picture recording mode, the battery voltage is compared to a 2nd power saving reference voltage and the camera is disabled if the battery voltage is less than the 2nd power saving reference voltage. Hidetoshi et al. describes in a translation that the 2nd power saving reference voltage is lower than the 1st power saving reference voltage.

According to the present invention, an object is imaged by an imaging device. Regarding a recording mode, there are two modes: one is a first mode for recording one screen of image signal corresponding to an object image which is imaged by the imaging device, and a second mode for recording a plurality of screens of image signals corresponding to the object images which are imaged by the imaging device, and any one of the recording modes is selected by a selector. A recorder records to a recording medium the image signals having the number of screens corresponding to the selected mode. A displayer displays a real-time motion image corresponding to the object images which are imaged by the imaging device during a time period that no recording process is performed by the recorder.

A determiner determines whether or not a remaining amount of a battery is equal to or more than a threshold value corresponding to the selected mode out of a first threshold value corresponding to the first mode and a second threshold value corresponding to the second mode. A controller enables the recorder when a determination result of the determiner is affirmative, and disables the recorder when the determination result of the determiner is negative. Herein, the

imaging device and the displayer are out of control of the controller.

Accordingly, the imaging device and the displayer carry out an imaging operation and a displaying operation, respectively, irrespective of the determination result of the determiner. The real-time motion image possibly continues to be displayed after the remaining amount of the battery fall below the threshold value, that is, after the recorder is disabled. This enables to adjust an imaging condition such as an amount of exposure, a focus, or a white balance, and to use as a telescope that takes advantage of a zooming function.

On the contrary, Sakai discloses to change a clock frequency depending upon an imaging mode so as to restrain consumed electricity. Therefore, it is possible to prolong longevity of the battery. However, as described before, Sakai fails to disclose or remotely suggest anything about such an operation as displaying a real-time moving image, determining a remaining amount of a battery, or enabling/disabling a recording process depending upon a determination result. Therefore, the applicant believes that it is not possible to reach the present invention from Sakai.

Hidetoshi et al. discloses that when a battery voltage is less than a 1st power saving reference voltage in a moving picture recording mode or less than a 2nd power saving reference voltage in a still picture recording mode, a power supply from a battery is interrupted by a control circuit. However, according to Hidetoshi et al., interrupting the power supply by the controller causes a turning-off of a camera section besides a recorder section, and therefore, it becomes impossible to continue to display a real-time motion image after the battery voltage is less than the power saving reference voltage. Furthermore, Hidetoshi et al. fail to disclose or remotely suggest anything about

such a constitution as the present invention in which the imaging device and the displayer are out of control of the controller. Accordingly, the applicant believes that it is not possible to reach the present invention from Hidetoshi et al.

Next, regarding a combination of Sakai, and Hidetoshi et al., either reference fails to disclose or remotely suggest anything about the imaging device and the displayer being out of control of the controller. Accordingly, the applicant believes that it is not possible to reach the present invention from the combination of these references, and therefore, the present invention is patentable.

Therefore, independent claim 7 patentably distinguishes over the prior art relied upon by reciting,

“An electronic camera which is driven by a battery, comprising: an imaging device for imaging an object; a selector for selecting anyone of a first mode for recording one scene of image signal corresponding to an object image which is imaged by said imaging device and a second mode for recording a plurality of scenes of image signals corresponding to the object images which are imaged by said imaging device; a recorder for recording to a recording medium the image signal(s) having the number of scenes corresponding to the mode selected by said selector; a displayer for displaying a real-time motion image corresponding to the object images which are imaged by said imaging device during a time period that no recording process is performed by said recorder; a determiner for determining whether or not a remaining amount of said battery is equal to or more than a threshold value corresponding to the mode selected by said selector out of a first threshold value corresponding to the first mode and a second threshold value corresponding to the second mode; and a controller for enabling said recorder when a determination result of said determiner is affirmative and disabling said recorder when the determination result of said determiner is negative, wherein said imaging device and said displayer are out of control of said controller.” (Emphasis Added)

Therefore, withdrawal of the rejection of Claims 7-8 under 35 USC §103(a) as being

unpatentable over Sakai (U.S. Patent No. 5,206,730) in view of Hidetoshi et al. (JP 06-022262) is respectfully requested.

Claims 9 and 12 are rejected under 35 USC §103(a) as being unpatentable over Sakai (U.S. 5,206,730) in view of Hidetoshi et al. (JP 06-022262) further in view of Kaneko et al. (U.S. Patent No. 5,262,868).

Kaneko et al. describes a digital camera in which a threshold voltage is compared to the battery voltage supplied. If the battery voltage is less than the threshold voltage, then an alarm display is issued and a buzzer sounds.

Claims 9 and 12 are allowable by virtue of their dependence from an allowable independent claim. Therefore, withdrawal of the rejection of Claims 9 and 12 under 35 USC §103(a) as being unpatentable over Sakai (U.S. 5,206,730) in view of Hidetoshi et al. (JP 06-022262), further in view of Kaneko et al. (U.S. Patent No. 5,262,868), is respectfully requested.

Claims 10-11 are rejected under 35 USC §103(a) as being unpatentable over Sakai (U.S. Patent No. 5,206,730) in view of Hidetoshi et al. (JP 06-022262) and Kaneko et al. (U.S. Patent 5,262,868) further in view of Ejima (U.S. Patent No. 6,188,432).

Ejima describes a camera having a low speed continuous shooting mode in which 8 frames per second are taken and a high speed continuous shooting mode in which 30 frames per second are taken.

Claims 10 and 11 are allowable by virtue of their dependence from an allowable independent claim. Therefore, withdrawal of the rejection of Claims 10-11 under 35 USC §103(a) as being unpatentable over Sakai (U.S. Patent No. 5,206,730) in view of Hidetoshi et al. (JP 06-022262) and Kaneko et al. (U.S. Patent 5,262,868) further in view of Ejima (U.S. Patent No. 6,188,432) is respectfully requested.

New Claim

New claim 13 is added to this application. New claim 13 finds support in the specification and the originally filed claims. Therefore, allowance of new claim 13 is respectfully requested.

Conclusion

In view of the aforementioned amendments and accompanying remarks, claim 7, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS,
HANSON & BROOKS, LLP



George N. Stevens
Attorney for Applicant
Reg. No. 36,938

GNS/alw
Atty. Docket No. 991207
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



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